Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In re Applications of	)	
AMERITECH CORP., Transferor,	)	
and	)	
SBC COMMUNICATIONS, INC., Transferee	)	CC Docket No. 98-141
for Consent to Transfer Control	)	

SWORN DECLARATION

OF

CARL H. LAEMMLI

ON BEHALF OF

SPRINT COMMUNICATIONS COMPANY L.P.

Sprint Appendix 1

Affiant Background

1. My name is Carl H. Laemmli. My business address is 4220 Shawnee Mission Parkway, Fairway, Kansas 66205. I am presently employed as Senior Manager-Network Costing for Sprint/United Management Company.

2. I received a Bachelor of Science degree in Business Administration from Central Missouri State University in 1983. I have 23 years of experience in Local Loop planning, design, construction, costing and Customer Service Operations in rural, urban and suburban environments. My experience includes line and staff responsibilities for local loop design, new technology evaluation and support, Operational Support System ("OSS") design and implementation, Network and Operations Policy development, Policy development and implementation of Network and Operations support for Competitive Local Exchange Carriers ("CLECs") for both Incumbent Local Exchange Carrier ("ILEC") and CLEC operations. I am currently responsible for network and operations costing for unbundled network elements ("UNEs"), universal service fund and other product offerings.

3. From 1976 to 1978, I performed contract engineering design work of urban local loops for Southwestern Bell Telephone Company and rural multi-party line elimination projects for United Telephone (Sprint) in Missouri.

4. From 1978 to 1985, I was employed by United Telephone (Sprint) in Missouri and Texas with responsibility for local loop planning, design, costing and construction, including copper

loops, Digital Subscriber Loop Carrier ("DLC"), as well as local and interoffice fiber optic cable.

5. I worked on United Telephone's (Sprint's) Texas operations staff from 1985 to 1987 with responsibility for Customer Service Operations methods and OSS implementation.

6. From 1987 to 1994, with United Telephone (Sprint) in New Jersey, I held positions of Network Engineering Manager (responsible for Outside Plant (OSP) and Special Circuit Engineering); Service Center Manager (responsible for Dispatch, Assignment, Testing and the Repair Call Center); and Area Service Manager (responsible for Residential and Small Business Customer Installation, Repair and Network Maintenance).

7. From 1994 to the present, I have held various corporate staff positions with Sprint/United Management Company. I have had responsibility for Network Support of Access Restructuring, new network technology assessment/implementation, OSS development, Network and Operations Policy Development, Results development, Operations and Network Policy and Methods development for Unbundled Network Element and Resale implementation. I have also been responsible for development of the Operations infrastructure for Sprint's CLEC operations.

8. With respect to the specific information presented herein, I am a member of Sprint's CLEC negotiating team in Missouri and other Southwestern Bell Telephone ("SWBT") states. In June and July 1999, I submitted testimony to the Missouri Public Service Commission ("Missouri PSC") analyzing and suggesting modifications to SWBT's proposed rates for digital

loop conditioning costs for loops between 12,000' and 18,000'. In addition, I have testified in Wyoming, North Carolina, Tennessee, Missouri, Florida and Nevada regarding TSLRIC/TELRIC cost matters, and have worked with the FCC staff on the development of Universal Service Fund cost model inputs.

Introduction

9. I submit this sworn declaration to present technical issues of network design and cost methodology relative to the proposals of SBC Communications, Inc. ("SBC") for certain non-recurring charges ("NRCs") for network modifications to support xDSL capable loops. I understand these issues to be part of the FCC's consideration of the public interest implications of the proposed merger between SBC and Ameritech. Fundamentally, Sprint believes that it is inappropriate for SBC to charge a recurring charge based on a "fixed up" network and then to charge again with a non-recurring charge to "fix it up."

10. I also understand that the Applicants have not attempted to document or otherwise provide support for their proposed line conditioning charges. SBC's proposed rates in this proceeding are virtually identical to the rates it proposed in Case No. TO-99-461 before the Missouri PSC.[1] Because there is no record support for SBC's rates in the FCC docket, this sworn declaration focuses upon flaws inherent in the public record submitted by SBC in support of its proposed rates in the Missouri

[1] Indeed, to Sprint's knowledge, SBC has proposed virtually identical non-recurring loop conditioning rates in all the SWBT states.

proceeding. Since the SWBT-Missouri rates are virtually the same as those proposed by SBC to the FCC, this analysis is directly relevant to the FCC proceeding.

11. Moreover, because Sprint's Local Telecommunications Division ("LTD") provides local exchange service in the state of Missouri, Sprint is in an excellent position to provide insight into the actual costs for doing reconditioning work in that state. As noted, SBC's proposed non-recurring rates for these charges are virtually identical from state-to-state.[2] Thus, the same flaws would arise whether one is addressing SBC's rates in Texas, Missouri, or generically before this Commission. Accordingly, Sprint proffers its own estimates of the costs faced by SWBT based on Sprint's actual experience. Further, since Sprint does not propose to charge CLECs for reconditioning of loops under 18,000', Sprint can provide reasoning from an ILEC perspective as to why conditioning charges are inappropriate for that length loop.

12. In order to function, an xDSL loop must be less than 18,000' in length,[3] the loop cannot contain any load coils, bridged tap must be limited to 2,000' to 3,000', and there should be no repeaters. These design criteria are inherently met in a forward-looking network. Therefore, when using a forward-looking

---

[2] To Sprint's knowledge, it appears that the rates differ (if at all) only with regard to the cost of labor.

[3] The length limitation varies based on gauge and specific type of xDSL service.

network assumption, no additional costs would have to be incurred to make the voice band network xDSL capable.[4]

13. In reality, some of the embedded network does not yet comply with this forward-looking design and costs may be incurred by the ILEC when providing an unbundled xDSL loop to its own retail customer or to a CLEC. These costs include such things as removing load coils and cutting out excessive bridged tap on a cable pair. However, since these costs do not exist in a forward-looking network, it is inappropriate to charge a UNE non-recurring charge for their removal. Sprint LTD assumes this forward-looking standard in its recurring and non-recurring UNE costs and does not propose charges for conditioning of UNE xDSL loops.

14. Sprint believes that non-recurring charges should be developed using the same assumption as the recurring charges -- a forward-looking network design assumption. This provides the required consistency in costing assumptions between the recurring and non-recurring charge studies. Accordingly, it is inappropriate to "pick and choose" network assumptions as needed to minimize or maximize costs. The ILEC is being compensated for a "state of the art" network, even though that network is not actually in place. This approach is consistent with the Commission's forward-looking design standard -- TELRIC.

[4] A forward-looking network avoids the use of load coils by keeping all copper loops shorter than 18,000'. This is done by extending fiber optic feeder to locations close to the customer.

15. Sprint further believes that this Commission and the Missouri PSC have clearly established a forward-looking cost standard as the basis for the development of UNE recurring and non-recurring costs. The SWBT recurring charges for xDSL loops were developed using forward-looking assumptions.

16. For example, SWBT's study for UNEs assumes non-loaded cable and fiber feeder instead of the embedded network. It is clearly appropriate for non-recurring charges to be developed on the same basis. In a forward-looking network, load coils, bridged tap, and repeaters are not issues, because they do not exist. There can be no non-recurring cost to remove them. Sprint believes that, just as in UNE recurring costs, the non-recurring costs should be forward-looking "costs," not embedded "costs." Non-recurring charges for unloading xDSL pairs, and removal of bridged tap and repeaters should be eliminated.

17. Even if one accepts that these non-recurring conditioning costs should be on an embedded basis, one cannot assume that this was meant to include correcting pre-existing ILEC design errors. Incurring the cost to de-load pairs should not be a significant issue today because the pairs under 18,000' in length that would support current xDSL services should not be loaded. Similarly, they should not have repeaters. In instances in which they are for some reason loaded, other pairs could be selected, or the pairs could be de-loaded in bulk at a substantially lower cost per pair. Similarly, the costs to remove or reduce bridged tap may be minimized by carefully selecting the splice location. Simply cutting the pair off at

the serving terminal at the time that the xDSL service is installed would bring many loops into compliance at very little incremental cost. As xDSL services proliferate, binder management systems and network design practices will further reduce the need to do "one at a time" loop qualification and offer the opportunity to efficiently clean up the network on a binder by binder basis. Should this Commission find, however, that these non-recurring charges are appropriate, the SBC proposed prices should be sharply reduced to more realistically reflect the actual costs that SBC will incur.

Purpose of Cable Loading

18. An electrical characteristic inherent in all telephone cable is "capacitance." The capacitance of a cable pair causes "attenuation" or "loss" in the voice signal. At distances beyond 18,000' this "loss" becomes great enough to affect the quality of the service. That is, the customer will begin to have difficulty hearing. In order to improve voice transmission, by lowering and equalizing the loss, inductors or "load coils" are spliced into the cable pair at regular intervals.

19. Load coils consist of two small coils of wire. These coils offset the effect of the capacitance, reducing the "loss" and allowing the customer to hear.

20. Load coils are not used in a forward-looking network. Instead, the copper portion of the loop is kept under 18,000' by extending fiber feeder deeper into the network.

21. Physically, a load coil contains two small coils of wire, about 1" in diameter. There are four wires that are

connected to each load coil, an "in" and an "out" wire for each side of the cable pair. The coils may be installed individually, but are more generally packed together into a large case, with a piece of cable coming out to connect the coils to the cable pairs.

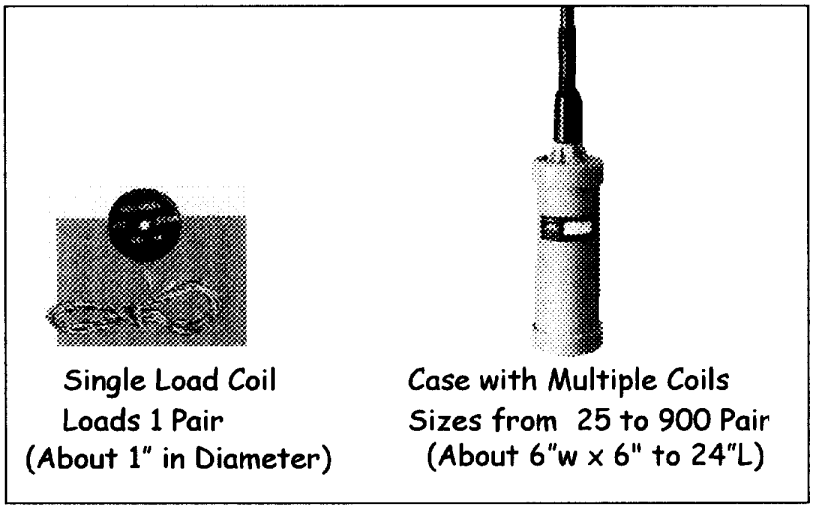

Figure 1 -- Load Coils

22. In the standard loading scheme, load coils are placed only on pairs that are longer than 18,000'. xDSL will work only on pairs that are less than 18,000' long. Thus, there should be no instances in which properly designed pairs would need to be unloaded for an xDSL service.

23. For pairs over 18,000', multiple load coils are spaced along the loop at regular intervals. The first load coil is placed 3,000' from the switch, with subsequent load coils placed every 6,000'. Load coils would be located at 3,000', 9,000', 15,000', 21,000' and so on. For voice, customers must be located

at least 3,000' and less than 9,000' past the last load coil.[5] This is called the customer end section. If an end section beyond the last load coil is less than 3,000', the load coil should be omitted so that the prior load coil will have an end section of 3,000' to 9,000'. In general, rather than loading individual pairs, entire binder groups[6] will be loaded at the same location. The simple example below illustrates these concepts.

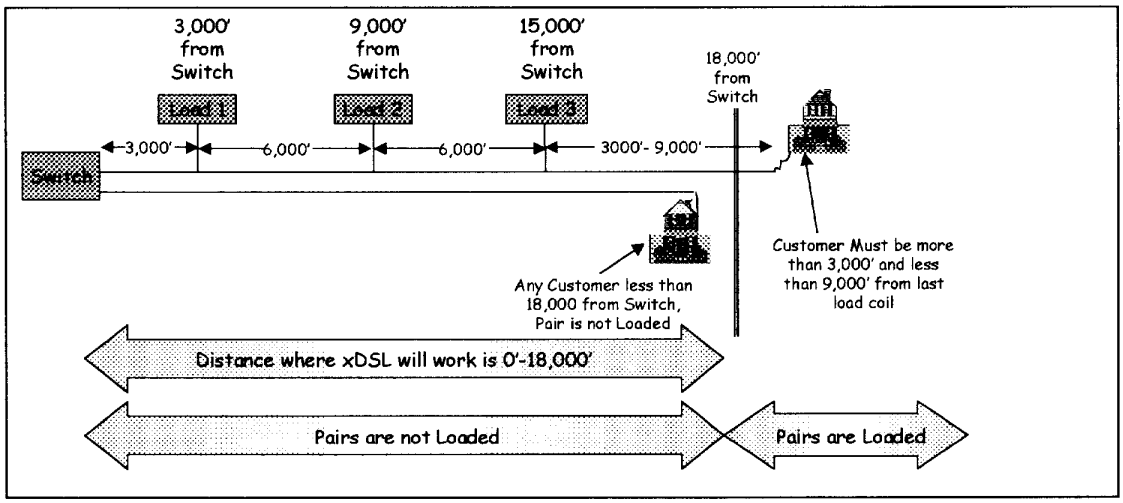

Figure 2 -- Basic Loading Design Rules

24. Load coils, while not necessary, do not interfere with voice service for loops less than 18,000' if other network design rules are properly followed. In contrast, they are required to provide voice service over loops greater than 18,000'. However, load coils are not compatible with "digital" services; while load coils make voice services possible over longer distances, they

---

[5] Industry standard designs based on *AT&T Outside Plant Engineering Handbook*, 10/96, at 5-3 to 5-5 and *Bellcore Notes on the Network*, 12/97, at 7-70.

[6] A binder group is a group of 25.

also block the transmission of digital data. In the late 1970s, the industry began to deploy fiber and electronics that allow the copper portion of the network to be kept to distances shorter than 12,000', thereby eliminating the need for load coils in the network. This was done to allow data services to be sold over the voice network. Loaded cable plant is not considered to be forward-looking technology, because it impedes the deployment of data services.

25. xDSL services are known to interfere with certain other high speed data services. Sprint LTD, SWBT and other LECs are implementing plans to proactively make their networks capable of supporting xDSL services. An SWBT witness has described the "Spectral Management Plan" that SWBT will employ in Missouri.[7] This plan includes the identification and segregation of particular binder groups for conflicting services. The efficient implementation of these plans requires that cable be conditioned for multiple services at one time, and not on a service order by service order basis.

26. Moreover, these efforts will provide significant benefits to SBC as well as CLECs, and are clearly targeted to SBC retail services. A June 15, 1999 news release states:[8]

- SBC Communications, Inc. the No. 2 U.S. local phone company, will boost spending over the next two

---

[7] Direct Testimony of Deere for SWBT, in TO-99-370 at 12 ("Deere Direct") (relevant pages attached as Exhibit A).

[8] Bloomberg News, June 15, 1999 (David Gallemore, SBC executive overseeing SBC High Speed Data products) (LEXIS, Blmbrg Library, Allbbn File).

years to accelerate the rollout of high-speed Internet services to compete better with cable-television providers, said David Gallemore, a company executive.

- The plan would more than double the number of phone lines eligible for the service to 21 million, making it available to about 70 percent of SBC's customers, said Gallemore, who oversees SBC's high speed data services.
- SBC is racing to make high speed Internet access and other data services available to its customers faster than cable-TV companies like AT&T Corp., which is targeting California, Texas, and other SBC strongholds.

27. It is important to recognize that: 1) SBC is proactively preparing its network to support xDSL services, to quote SBC, the "renewing [of] our Network"[9]; 2) it is far more efficient to prepare the entire cable at one time rather than to do so for individual pairs pursuant to separate service orders; and 3) SBC is already rolling these "make-ready" costs -- capital and expenses -- into its retail and wholesale recurring costs, not its non-recurring charges.

28. To summarize this portion of my sworn declaration:

- Load coils are devices placed on loops longer than 18,000' to improve the quality of voice transmission. They block data transmission.
- Load coils are *not* required for voice service on loops shorter than 18,000'.
- xDSL service works only on copper loops shorter than 18,000'.
- There is no overlap in the area that xDSL can serve and the area that requires load coils to support voice services.
- It is far more efficient to make the network xDSL capable on a 25 pair binder group basis than by doing so separately for each individual service order.

---

[9] Id.

SBC's Proposed Loop Conditioning Charges
Are Invalid, Unsupported, and Excessive

29. As discussed above, an order for xDSL should not require load coil removal. xDSL services will only work up to 18,000'. Only pairs that are longer than 18,000' are loaded. There should be no instances in which a load coil should have to be removed from a properly designed voice grade pair that is short enough to support xDSL. There should be no cost to Sprint for unloading voice frequency pairs for xDSL loops.

30. SBC's proposed merger condition states that it will not charge to condition loops less than 12,000' "that do not meet SBC/Ameritech's design criteria for its tariffed xDSL services but that could be conditioned to meet the minimum requirements defined in the associated SBC/Ameritech technical publication." Proposal, Att. C. This portion of the proposal is reasonable because cable pairs that are less than 12,000' long should not be loaded in the first place. As discussed below, if they were loaded, it would be because of a design error on the part of SBC, or because of a unique design for a specialized service. Thus, it is entirely reasonable that the CLEC should not have to pay to correct an SWBT design error or to remove special modifications made on behalf of another customer. SBC clearly recognizes this principle for these pairs.

31. However, there is no justification for SBC's proposal to charge non-recurring loop conditioning charges for the removal of load coils between 12,000' and 18,000'. There is no difference between pairs 0'-12,000' long and pairs that are

12,000'-18,000' long relative to industry standard loading design. Loading is not required in either situation.

32. Indeed, Sprint is aware of only two instances in which loops less than 18,000' might be loaded: (1) where they have been loaded to provide a specialized service, such as use of a mechanized (non-digital) PBX in the 1960s; and (2) where SBC has reinforced its loops greater than 18,000' with DLCs, resulting in spare cable pairs being reused for customers closer to the central office. In the first instance, SBC should be required to recover any costs of removal from the original purchaser that requested and received a modification to the standard network design. Indeed, this is precisely what SBC proposes to do with regard to restoring bridged taps. See *infra* ¶¶ 75-79. In the second instance, SBC would be reusing loops in excess of 18,000' -- which had been properly loaded initially -- to serve customers at lengths less than 18,000'. While SBC may of course seek to reuse its plant in any manner it deems appropriate, it should have to make all changes necessary -- including removal of excess load coils -- to bring these loops into compliance with minimum line design criteria for loops less than 18,000' from the central office. In either case, it is not Sprint's (or any other CLEC's) responsibility to pay for these removal costs.

33. Regardless, even under one of the above-described scenarios, SBC continues to overstate its deloading costs. In my review of SWBT's charges in Missouri, I found that SWBT's load coil removal charges are unsupported and excessive in several ways, including use of unsupported work times, assumption of the

removal of load coils in too many locations, failure to consider the reduced work times required for working in aerial or buried versus underground cable, and double counting travel time. SWBT also failed to consider the efficiency that can be gained by unloading pairs in bulk, as a least cost, efficient provider would do.

34. SWBT's reliance on "opinions" for work time estimates is not an adequate basis for non-recurring charges of this magnitude. It might be reasonable to rely on expert opinion when calculating a $5 or $10 non-recurring charge where a "ballpark" number would result in an estimate difference worth a few pennies.

35. However, in this instance, SBC is proposing non-recurring charges in excess of $900 per occurrence. An estimate difference of only 10-15% could result in an overcharge of $90 to $150 dollars. Surely, a charge of this magnitude requires some level of support beyond an "estimate of 12 hours" work time.

36. In other cost proceedings involving SWBT, the Missouri PSC drastically reduced NRCs because they were not adequately supported.[10] SBC now asks this Commission to accept NRCs of over $900 with similar or less support.

---

[10] The Missouri PSC has adopted staff recommendations to cut SWBT's UNE NRCs in half due to lack of support. See, e.g., AT&T's Petition for Arbitration to Establish an Interconnection Agreement with SWBT, Case No. TO-97-40, Final Arbitration Order at 123-24 (July 31, 1997) (relevant pages attached as Exhibit B); AT&T's Petition for Second Arbitration, Case No. TO-98-115, Staff Costing and Pricing Report, Vol. 2 at 2 (July 24, 1998) (relevant pages attached as Exhibit C).

37. In its Missouri cost estimates, SWBT has not exercised even minimal "due diligence" in identifying the required work activities and the frequency with which each would be required in performing conditioning tasks. Thus SWBT cannot rely on that expert opinion. Load coils may be located in manholes, in buried cable or in aerial cable. It takes significantly more time to unload a pair in a manhole than it does in either aerial or buried cable.[11] To even begin to develop an "expert opinion" one would need to know the work time in each situation, and the relative percentage of time that each would occur. SWBT does none of this. The Missouri rates were simply based on an estimate that it would, on average, take 12 hours.

38. Further, SWBT has not even determined exactly how many places each pair would have to be unloaded. It simply states that it is "3 or more" locations.[12] It is impossible to accurately estimate the average time to unload a pair without knowing how many locations in which a technician will have to work.

39. This could have a significant impact on SBC's estimate. For instance, assume unloading a cable pair takes 4 hours in underground cable, and 2 hours in aerial or buried cables. If the mix of load coils under 18,000' in Missouri is 80% underground, 10% aerial and 10% buried, then the average time per

---

[11] SWBT witness Wren concedes this point in his rebuttal testimony. Rebuttal Testimony of Wren for SWBT, in TO-99-370 at 5 ("Wren Rebuttal") (relevant pages attached as Exhibit D).

[12] Id. at 6.

load coil would be 3.6 hours (.8 times 4 hours +.1 times 2 hours + .1 times 2 hours). If the underground percentage is 50%, then the average time to disconnect a load coil would be 3 hours.

40. Taking this one step further -- and using 3 hours as an example -- if this work is done in 3 locations, the total work time would be 9 hours. If it were done in 4 locations the total work time would be 12 hours. Which is it?

41. SWBT in Missouri has not provided an acceptable basis for their "expert opinion." It has made an off-the-cuff, "guess" at an overall work time. This is simply insufficient support for a non-recurring charge of this magnitude.

42. Further, SWBT's Missouri proposal is too high because SWBT has assumed that load coils are being removed in too many locations on each pair. In his rebuttal testimony, SWBT witness Mr. Wren, who developed the load coil removal cost estimates, states:

> The estimated time for the cable technician to remove load coils is 12 hours because there are multiple (*usually 3 or more*) load coils at different locations on the loop which requires the cable technician to physically move from one location to another.[13]

43. In the specific case of the customers to whom this charge would apply -- *i.e.*, those located between 12,000' and 18,000' -- *there could not possibly be more than two load coils to remove*, let alone the "*3 or more*" that SWBT has assumed.

44. Looking at Figure 3, we see again that, when necessary, load coils are placed at locations 3,000', 9,000' and 15,000'

[13] Id. (emphasis added).

from the switch. Clearly for customers located between 12,000' and 15,000', it is impossible to have more than two load coils to remove. Indeed, there can be only two load coils between the customer and the switch! Furthermore, design rules require that customers not be within 3,000' of a load coil. Accordingly, even for specially modified or reused loops, customers between 15,000' and 18,000' could not have more than two load coils to remove because those pairs would not be loaded at Load 3.

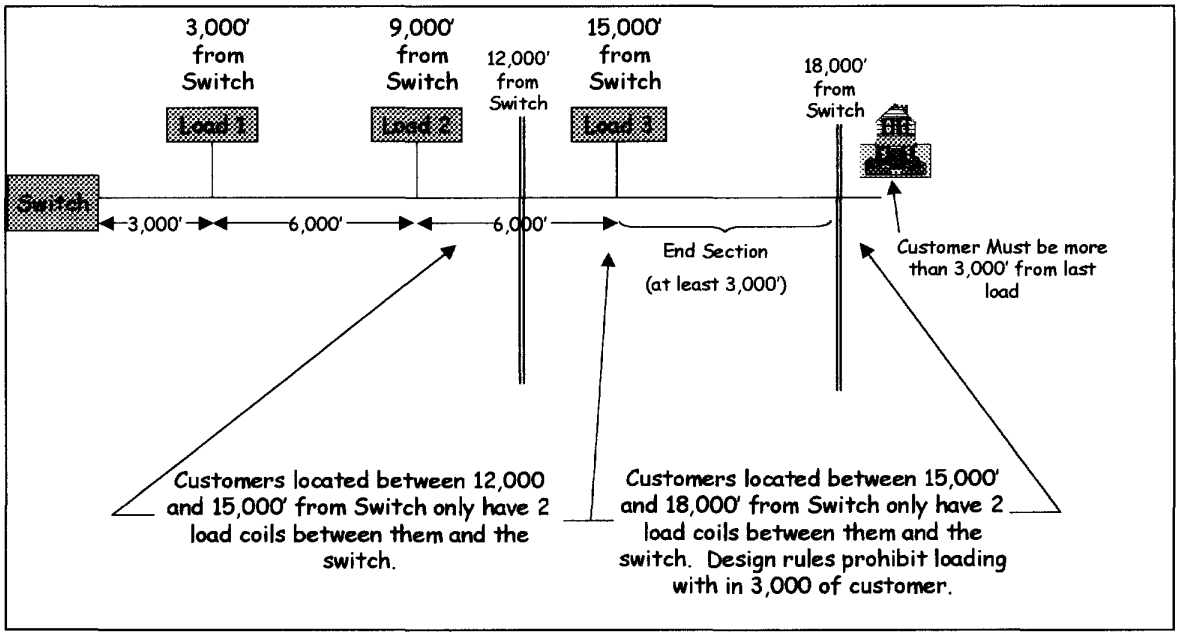

Figure 3 -- SWBT Assumes Removal Of Too Many Load Coils

45. If the Commission determines that it is appropriate to allow SBC to recover the costs of correcting its improperly loaded loops through NRCs, in light of the fact that, at most, the work must be done at only two locations -- and not the "*3 or more*" locations that SWBT has assumed in Missouri and

(apparently) in the FCC proceeding as well -- *on this basis alone* SBC's charges should be reduced by a minimum of 33-60%.[14]

46. In the Missouri submissions, SWBT also appears to "double count" in two different ways the cost of travel time underlying its non-recurring charge for removal of load coils. First, SWBT double charges by explicitly charging for travel time in the cable unloading NRC[15] and then charging for it again in the technician labor rate.

47. Generally, a "travel time" component is already included in the technician's loaded labor rates. Based on Sprint LTD field technician averages, this can range from 5% to 10% of the total loaded labor rate. While this cost may not be significant on smaller non-recurring charges, it represents an overcharge of $45-$90 on an NRC of over $900.

48. Second, SWBT charges for travel time to the work site, as well as travel to the next job site.[16] When Sprint LTD calculates its NRCs, Sprint assumes only travel to the job site, since travel to the next job site is part of the next job and is not part of the current work activity. Assuming otherwise results in double recovery of the travel time between work functions for both the current job and the next job. For example, if a plumber comes over to your house to do some work,

---

[14] SBC has not provided sufficient data for Sprint to determine the exact reduction required. If SWBT assumed 3 locations, the reduction would be 33% (1/3); 4 locations, 50% (2/4); 5 locations, 60% (3/5).

[15] Wren Rebuttal at 6 (relevant pages attached as Exhibit D).

[16] Id. at 5, 6.

you would reasonably expect to pay for the travel time to your home. But you certainly wouldn't expect to pay for the travel time from your house to the next job that the plumber does. The next customer should pay for that trip. (The plumber would, of course, love this arrangement, since he would get paid twice for the *same trip* by charging you for a trip *from* your house, while charging the next customer for a trip *to* his house!)

49. This same double counting occurs in all of the non-recurring charges in question. SWBT has not provided the actual travel time that it assumed. Thus, Sprint recommends that the NRC for load coil removal should be reduced further to remove the effect of this double counting.

50. Further, based on Sprint's own experience performing this type of work, Sprint believes that 2 hours of engineering time and 30 minutes of drafting time[17] is excessive. Based on my own personal experience, I would be able to complete similar work in under an hour without the use of a drafting clerk. SWBT's estimate may be overstated based on their assumption that work is required at "3 or more" locations instead of the maximum number of 2. If the Commission upholds this NRC, Sprint recommends a reduction of this cost to reflect 1 hour of work time.

51. Generally, the load coil is not actually removed, it is just disconnected from the cable pair. This involves snipping off the 4 wires that connect the coil to the cable pair and then reconnecting the two ends of the cable pair. In larger cables,

---

[17] Id. at 4.

this generally requires removing a connector that splices twenty-five pairs at a time, pulling out the load coil wires and replacing the connector.

52. The actual work time involved in making the connections is no more than a minute or two, but set up time can be significant, particularly when working in manholes. This is why Sprint LTD prefers to unload multiple pairs at one time, instead of unloading only the pair required for the current order. It is far more efficient.

53. Finally, the SWBT NRC for unloading cable pairs does not reflect the efficiencies that SWBT will undoubtedly attain through the implementation of its Binder Management Plan. SWBT clearly recognizes in their proposed NRC for unloading cable that the cost to unload a second pair at the same location is a fraction of the cost to unload one pair. By far and away, the biggest part of the cost to unload a pair is in getting into and out of the cable.

54. As a practical matter, an experienced network engineer would *never* incur this large up front cost without attempting to complete as much other work as possible at that location. (If you need ten items from the grocery store, and it is a 4-hour trip, do you make ten trips, or do you make a list and go only once?) SWBT has stated its goal of assigning specific 25 pair binders to xDSL services.[18] It is undertaking a program of

[18] Deere Direct at 12 ("The goal of SWBT is to move in the direction of having specific binders for repeat[er]ed T-1s, and have a group of binders for ADSL (as well as POTS)."") (relevant pages attached as Exhibit A).

accelerated expenditures to achieve that goal.[19] It is reasonable to assume that SWBT will operate efficiently and unload entire 25 pair binder groups when it has the opportunity to do so.

55. First and foremost, the pairs at issue here -- pairs under 18,000' long -- should not be loaded at all. In those limited circumstances in which a pair is loaded, however, the entire binder group is typically loaded. To the extent that SBC has recovered those pairs for reuse, SBC should have deloaded the loops to ensure that they comply with standard network design criteria. Where SBC has not done so, and a CLEC seeks to have a single loop unloaded, at a minimum, SBC should be required to act efficiently and take advantage of that opportunity to deload all 25 pairs and divide the costs accordingly. This is particularly appropriate where, as here, the coil performs no useful function whatsoever.

56. If SBC declines to take advantage of the opportunity to efficiently spread the costs of correcting its loading errors across itself and other CLECs, Sprint should not be required to pay for SBC's inefficiencies. Similarly, if SBC does take the opportunity to unload additional pairs when fulfilling a CLEC service order, but is not required to adjust the costs accordingly, CLECs will pay a disproportionate share of the cost.

---

[19] Bloomberg News, June 15, 1999 (David Gallemore, SBC executive overseeing SBC High Speed Data products) (LEXIS, Blmbrg Library, Allbbn File).

57. At a minimum, the cost of unloading one pair should be based on the least cost, most efficient method that a prudent carrier would employ. With regard to load coils, the cost should be determined by taking 1/25th of the cost of unloading 25 pairs at once.

SWBT's Charges For Removing Bridged Tap Are Incompatible With A Forward-Looking Network Assumption

58. Bridged Tap is any piece of the cable pair that is not in the direct path between the customer and the switching device. In the following illustration, "A" and "B" are considered to be Bridged Tap. Bridged tap is an issue because it degrades the quality of any type of signal. For voice transmission on a non-loaded pair, the total of the entire bridged tap cannot exceed 6,000'. For xDSL, varying sources limit bridged tap to 2,000' or 3,000'.

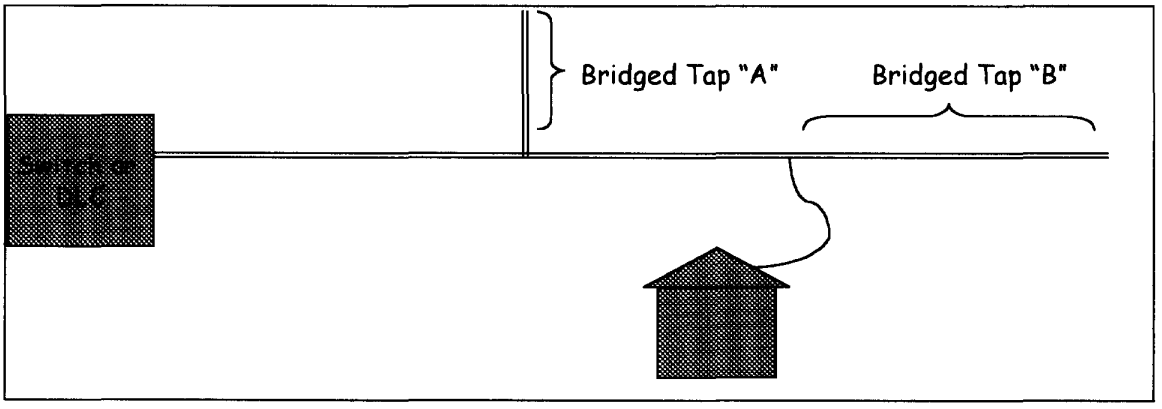

Figure 4 -- Bridged Tap

59. In this example, assume that the sections of the cable labeled "A" and "B" are each 2,000' long. Thus, the total bridged tap is 4,000'. This is acceptable for voice but not for xDSL. In order to be used for xDSL, we would need to eliminate

2,000' of the bridged tap. In this example, one could accomplish this by cutting the pair off at the customer's location, eliminating bridged tap "B." Only enough bridged tap to get the total under 2,000' has to be removed. Thus, it would not be necessary to remove both "A" and "B."

60. Virtually all bridged tap removal could be done in aerial or buried cable. While the "specter" of having to open manholes and underground splice cases is often raised, this would rarely have to be done. First, cable pairs are very rarely bridged in the underground feeder plant. The reason is precisely to avoid having to re-enter these splices. Feeder pairs in the underground are dedicated to particular Serving Area Interfaces ("SAI"), buildings, or distribution areas, and are usually not bridged. In fact, SBC's loop cost study assumes a completely separate cable to each SAI and no bridged tap in the feeder.

61. In the few instances in which cable pairs are bridged in a manhole splice, it is very likely that the pair could be trimmed at the point at which it leaves the conduit system and becomes aerial or buried for distribution. This would be far less costly than opening a splice in a manhole.

62. In the embedded network, there may be insufficient distribution pairs to permanently assign pairs to each address. A pair may be made accessible so that it could potentially be used at several different addresses if it were needed. This results in a bridged tap.

63. One would not expect to see bridged tap in a forward-looking network. The forward-looking investment models assume a

complete distribution network with adequate cable pair capacity to each location. There would be no need to bridge pairs.

64. It is not reasonable for SWBT to assess a non-recurring charge to remove bridged tap. Because the model provides enough cable pair investment to eliminate the need for bridged tap, SWBT would be recovering the cost twice -- once in the recurring charge for this "cleaned up" network and again in the non-recurring charge to clean it up.

65. Further, even assuming that bridged tap removal is necessary, a lower monthly recurring charge should be developed.

66. In my review of SWBT's submission in Missouri, I found that SWBT's proposed costs to remove bridged tap are significantly overstated and suffer from the same shortcomings as the load coil charge development. In short:

- The work times are excessive and not based on any factual information.
- Travel time is double counted.
- Engineering time is excessive.
- Charges to restore bridged tap are not fact-based.

67. As with load coils, "removing" a bridged tap does not require plant to actually be removed. The two wires of the cable pair are simply cut off and capped. In splices in larger cables, this may require removing a connector that splices twenty-five pairs at a time, pulling out the bridged pair and replacing the connector.

68. The costs to remove bridged tap may be minimized by carefully selecting the splice location. Looking back at Figure 4, any length of the pair that extends past the customer location

is considered bridged tap (technically known as "end section"). Cutting the pair off at the serving terminal at the time that the xDSL service is installed would bring many loops into compliance at very little incremental cost. That is, the technician could remove the bridged tap while doing the installation. This would eliminate a separate trip, separate set up time and separate tear down time. The only additional time would be the few minutes that it would take to cut the wires or remove them from the connector.

69. Further, if the network is properly designed, most bridged tap would be non-existent or in the distribution network where costs would be minimized because cables are typically smaller and are not located in underground conduit and manholes.

70. Nor are SWBT's work times for bridged tap removal supported by any data. Once again, if one were discussing incidental amounts of work time, where an estimate might vary from the actual by a few pennies, this might not be an issue. But the instant case involves an NRC of $600, with no support documentation whatsoever.

71. In Missouri, for example, SWBT estimates that it will take 4 hours to remove each and every bridged tap. This "work time" is broken down as follows:

- Accessing the cable: 2 hours (includes travel time, set up work area protection and accessing the cable)
- Splicing time: 1 hour (includes opening the splice case, accessing the cable pairs, and closing the splice case)
- Close down time: 1 hour (includes removing work area protection and travel time)[20]

[20] Wren Rebuttal at 6 (relevant pages attached as Exhibit D).

72. These work times completely fail to consider the possibility of removing the bridged tap at the customer location. Further, they simply do not pass a basic "sniff test."

73. Compare the simple, straightforward task of removing one bridged tap at a known location to the far more complex task of finding and fixing cable trouble. (This is similar work that would be done by the same kind of technician.) Fixing cable trouble involves testing the pair, reviewing cable maps to determine the route of the cable pair, setting up and taking down multiple work sites, opening and testing the pairs in multiple splice locations, travel between multiple locations, diagnosing and then fixing the problem.

74. Sprint LTD cable repair technicians are able to complete the relatively complex task of fixing a problem on a cable pair in about 3 hours. It is simply not remotely plausible that it would take an average of 4 hours for a technician to perform the far simpler task of going to a pre-determined location and cutting off one cable pair.

75. In Missouri, SWBT proposes charging Sprint for engineering and splicing time associated with restoring 34% of the bridged taps to their original condition when the service is disconnected. This is unreasonable. First, the bridged tap modifications that were made to the pair to make it acceptable for xDSL service have <u>not made it in any way unacceptable</u> for voice service. There is no reason <u>to "re-impair" the pair</u>!

76. As a practical matter, it seems extremely unlikely that an efficient provider would ever actually reduce the quality of a

pair so that it would no longer support xDSL. This is particularly true in light of SBC's significant desire and efforts to make more of its network xDSL capable, and the fact that the pair would still be fully functional for delivering voice services.

77. Moreover, SWBT uses the identical work time estimates for restoring the bridged tap to the cable pair as it does for removing the bridged tap. Sprint's comments relative to these excessive work times are applicable to restoration work times as well.

78. Furthermore, SWBT provides no basis at all for its estimate of 34%. One would need to have significant data on the number, type and need for existing bridged taps in the network, as well as information on the xDSL provider churn rate, and knowledge of the impact of the SWBT network "renewal" program to make any sort of informed estimate.

79. Finally, if the Commission determines that, in fact, the cost of restoring some percentage of the network is appropriate, these costs will occur at some time in the future. As is common practice in these situations, these dollar amounts must be discounted to reflect the present value of the future expenditure.

SWBT Non-Recurring Charges For Removal Of Repeaters Are Inappropriate And Excessive

80. The type of repeaters that are found in cable plant is not used for voice grade circuits. They are specialized modifications to the voice network that are installed to support

digital service such as a T1, ISDN or long range 4-wire HDSL. In fact, these repeaters would make the pair completely unusable as a voice grade circuit. They are "interferers" to voice and any other kind of service.

81. Repeaters are wired into the cable pair in essentially the same manner as load coils. Repeaters generally have housing with slots for installation of special repeater cards, and are connected to the main cable through a short cable stub.

82. Repeaters for T1 must be placed every 3,000' to 6,000' depending on the gauge of the cable. They are generally in segregated binder groups, although they may be interspersed with voice circuits in some rare situations. Since T1 and xDSL services cannot be placed in the same binder, it would be impossible to simply remove the repeater on one of the T1 pairs and use it for xDSL while continuing to use the remaining pairs in the binder for T1.

83. Repeaters for ISDN and HDSL services are only required on very long loops. Repeaters are not required on pairs that extend less than 18,000'.

84. As with load coils, repeaters would not generally be physically removed. Instead, the pairs would be re-spliced. Alternatively, the repeater cards could simply be removed and replaced with "bypass" cards.

85. Moreover, in Missouri, SWBT's rates may double recover the cost to remove loop repeaters. As noted, a repeater is a special modification made to support one particular kind of service. While it is not clear whether SWBT has already

recovered the cost of removal from the original customer ordering the modification, SWBT proposes to do so in other instances, *e.g.*, charging Sprint for the removal of its special modification, that is, bridged taps. Further, Sprint has been unable to determine whether removal costs are included, as SWBT's witness in Missouri was unsure whether its rates for repeatered services included these costs.

86. If SBC is allowed to recover from Sprint the cost to remove repeaters, SBC may be recovering the same expenditure from both the original purchaser of the repeatered service and the purchaser of the xDSL loop. This is clearly inappropriate. To the extent that SBC includes removal costs in its installation NRCs for these special services, it should not charge Sprint as well for removal.

87. Similarly, pairs that would require repeaters to serve ISDN or 4-wire HDSL customers would never be used to serve xDSL customers. Again, as in loaded cable pairs and xDSL capable pairs, there is no overlap in these groups of pairs. Repeaters for these services are only used on pairs that extend well past 18,000'. As previously noted, xDSL services will work only on pairs that are under 18,000' long. There should be no occasion when the reasonable course of action would be to remove the repeater on a pair that is designed to serve a customer 30,000' from the switch for use by a customer that is 12,000' from the switch.

88. Moreover, in only very rare instances would SWBT remove the repeaters from a single T1 and use that pair to serve an xDSL

customer. There are generally multiple T1s grouped together in a binder. T1 and xDSL *cannot* operate in the same binder. So the entire binder would have to be refurbished at one time to make it suitable for xDSL services. As in load coils, the largest percentage of the work time is in set up and tear down. These costs should be spread over all the pairs recovered, not loaded onto the one new service.

89. Since T1 is a 4-wire service with separate transmit and receive binders, a total of 50 pairs would be recovered. The single pair needed for xDSL should bear no more than $1/50^{th}$ of the total cost.

90. SWBT also overstates the cost of removing repeaters. Sprint's previous comments regarding lack of record support for work times and double recovery of travel time also apply to the NRC for removal of repeaters.

91. Finally, if a line has a load coil and a bridged tap, the total engineering time for the removal of both is virtually the same as for one separately. If there are multiple non-recurring charges on a pair, engineering time would be double recovered. In this situation, engineering cost adjustments equal to the shorter engineering time of the two charges should be applied.

Proposed Non-Recurring Charges

92. Sprint believes it is inappropriate to charge any non-recurring charge for conditioning pairs between 12,000' and 18,000' in length for xDSL. Sprint LTD does not apply these charges. That said, Sprint does feel that it is appropriate to

detail what it believes to be the actual cost that an efficient LEC would experience in performing these activities. These costs are based on Sprint's experience in operating a LEC.

93. Sprint attaches a calculation of proposed non-recurring charges that Sprint believes are reasonable and reflect the assumptions that Sprint has outlined in this sworn declaration. See Calculation of xDSL NRCs (attached as Exhibit E). Sprint's proposed NRCs are also based on expert opinion for work times. However, unlike SBC's unsupported, high level estimates, the Sprint calculations clearly reflect the detailed, individual work times for each different situation, the frequency of that occurrence and the mix of activities.

94. In short, instead of presenting a "lump sum bill" as SBC has done, Sprint presents a "line item statement" that clearly allows the reader to see the individual work times, assumptions,[21] and calculations behind the resulting total.

95. The Sprint proposed NRCs are substantially lower than those proposed by SBC. They more accurately depict work times and frequency, removal of double charges, and the efficiencies likely to be attained when an ILEC upgrades its network.

96. SBC's proposed interim non-recurring charges for conditioning the network for xDSL service should be rejected. The "impediments" to xDSL service that will be removed under SBC's proposed non-recurring charges do not exist in a forward-

[21] Where specific data about the SWBT network in Missouri was needed but not available to Sprint, estimates were made based on the experience of Sprint's local telephone operations.

looking network. This Commission has decided previously that the forward-looking network standard should be applied when developing non-recurring charges for UNEs. It is impossible to support SBC's proposed non-recurring charges without assuming an embedded network.

97. Sprint LTD fully supports this forward-looking assumption in its UNE non-recurring charge development, and does not charge the CLEC twice for the improved network.

98. The "impediments" that SBC is proposing to charge Sprint to remove from the embedded network are there as a result of SBC design errors, or special engineering done for a previous customer. It is clearly not Sprint's responsibility to pay to remove deviations from the standard voice network made for another customer. Nor is it Sprint's responsibility to pay to bring SBC's network into compliance with accepted network design criteria. Also, to the extent that SBC's proposed rates here, as in Missouri, charge the customer that originally requested a modification to remove that modification when the service is disconnected, SBC should not be allowed to recover those costs from Sprint. Overall, SBC's proposed charges are unrealistic, unsupported, and must be rejected.

99. If the Commission decides that it is appropriate to adopt an interim non-recurring charge for loop conditioning, it should adopt those rates proposed by Sprint in the attached calculation. See Calculation of xDSL NRCs (attached as Exhibit E).

I declare under penalty of perjury that the foregoing is true and correct. Executed on July 16, 1999.

Carl H. Laemmli